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13. ABSTRACT (Maximum 200 words) <p>The progress in natural and man-made noise investigations from 1986 to 1989 is reviewed. Most but not all natural noise investigations have been made at frequencies below the HF band. Herman et al. (Radio Sci., 21 25-46, 1986) describe the measurement and statistical analysis of wideband MF atmospheric radio noise. Results presented include the temporal structure of atmospheric noise, the distribution and time variation of the measured average noise power, and comparisons with predictions by the CCIR. The impact on bandwidth and system performance is presented by Giordano et al. (Radio Sci., 21, 203-222, 1986). Stanford University (Fraser-Smith, A.C., NATO AGARD Conference Proc. 420, 4A, 1987) is operating a global network of eight computer-controlled receiving systems for the measurement of electromagnetic noise in the 10-32, 000 Hz frequency band. The digital data are being used primarily for statistical studies of the global distribution of ELF/VLF noise. Field and Warber (NATO AGARD Conference Proc. 420, 3, 1987) addressed the role of horizontal lightning strokes in producing transverse-electric (TE) LF atmospheric noise. Turtle et al. (Radio Sci., 24, 325-339, 1989) presented measurements of both TE and TM LF atmospheric noise aboard a free-floating balloon at altitudes up to 20 km. La Belle (J. Atmos. Terr. Phys., 51, 197-211, 1989) reported radio noise of auroral origin from 1968-1988.</p> <p>Although much of the man-made radio noise efforts have been concerned about spectrum occupancy at HF, Hagn (NATO AGARD Conference Proc. 420, 5, 1987) discussed what the scientific community knew and did not know about man-made radio noise. Measurement of man-made radio noise was also discussed. An experiment to measure spectral occupancy at HF has been undertaken by Gott (NATO AGARD Conference Proc. 420, 7, 1987) since the sunspot maximum of 1982. The aim was to provide data which may be used to advise HF operators on typical occupancy they may encounter. Hagn et al. (IEEE Trans. Broadcasting, 34, 1988) reported measurements of spectrum occupancy and signal levels made at four locations in the United States and at two locations in Europe. The paper presented some initial results comparing spectrum-occupancy and signal-level data between CONUS and Europe.</p> <p><i>Keywords: repetitive. (KR)</i></p> <p>Published in <i>National Radio Science</i>, January 1990.</p>					
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 PROGRESS 1986-1989
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The progress in natural and man-made noise investigations from 1986 to 1989 is reviewed. Most but not all natural noise investigations have been made at frequencies below the HF band. Herman et al.(Radio Sci.,21 25-46,1986) describe the measurement and statistical analysis of wideband MF atmospheric radio noise. Results presented include the temporal structure of atmospheric noise, the distribution and time variation of the measured average noise power, and comparisons with predictions by the CCIR. The impact on bandwidth and system performance is presented by Giordano et al.(Radio Sci.,21,203-222,1986). Stanford University(Fraser-Smith,A.C.,NATO AGARD Conference Proc. 420,4A, 1987) is operating a global network of eight computer-controlled receiving systems for the measurement of electromagnetic noise in the 10-32,000 Hz frequency band. The digital data are being used primarily for statistical studies of the global distribution of ELF/VLF noise. Field and Warber(NATO AGARD Conference Proc. 420,3,1987) addressed the role of horizontal lighting strokes in producing transverse-electric(TE) LF atmospheric noise. Turtle et al.(Radio Sci.,24,325-339,1989) presented measurements of both TE and TM LF atmospheric noise aboard a free-floating balloon at altitudes up to 20 km. La Belle(J.Atmos. Terr. Phys.,51,197-211, 1089) reported radio noise of auroral origin from 1968-1988.

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